Economic Performance and Market Work Activity in Sweden after the Crisis of the Early 1990s

Steven J. Davis and Magnus Henrekson

7.1 Introduction

Since emerging from a severe contraction in the early 1990s, the Swedish economy has accumulated a strong record of output growth, outpacing the average growth rate in the Organization for Economic Cooperation and Development (OECD) and in the European Union (EU-15). The performance of the Swedish labor market has been less impressive. By 2005, hours worked per person were still 10.5 percent below the 1990 peak and a mere 1 percent above the 1993 trough. Employment rates tell a similar story.

We more fully describe Swedish developments with respect to output and market work activity in the balance of this section. We then turn to several aspects of the Swedish institutional setup that repress market work activity. Our discussion highlights the role of high tax rates on labor income and consumption expenditures, wage-setting arrangements that compress relative wages, and business tax policies that disfavor labor-intensive industries and technologies. We describe these features of the Swedish institutional setup and provide evidence of their consequences based on Swedish outcomes

and international comparisons. We also identify some noteworthy policy changes since 2006 and their potential effects on market work activity in Sweden.

7.1.1   Output Growth

Beginning in the mid- to late 1960s, Swedish gross domestic product (GDP) growth slowed relative to earlier decades and relative to other rich countries. Income per capita fell from third or fourth place among OECD countries in 1970 to seventeenth place in 1993, dropping some 20 percentage points relative to the OECD average (Lindbeck 1997; Henrekson 2001). Since the 1993 trough, the Swedish growth record has greatly improved relative to the contemporaneous performance in other rich countries and relative to the previous two decades. Sweden's output grew almost 3 percent per annum from 1994 to 2005, well above the average pace in the EU-15 and the OECD. In terms of per capita GDP growth, Sweden even outperformed the United States over this period. No doubt, rapid growth after 1993 partly reflects a rebound from an unusually deep contraction in the early 1990s. Nevertheless, the Swedish economy had not experienced such rapid growth on a sustained basis since the 1960s, a decade often seen as the golden age of the Swedish model.[1]

Sweden's rapid output growth in recent years has not translated into comparable gains in relative income because of deterioration in its terms of trade (Håkansson and Lindbeck 2005). The industry composition of Swedish output growth in recent years is also noteworthy. As reported in table 7.1, manufacturing accounts for 41 percent of the real output gains in Sweden's private sector from 1994 to 2005.[2] Nearly half of the output growth within manufacturing took place in electrical and optical products. This aspect of Swedish output growth is particularly striking in light of manufacturing's falling share of output, and especially of employment, in the world's rich countries in recent decades. The terms-of-trade deterioration has probably helped stimulate the growth of Sweden's manufacturing output (measured at constant prices).

Outside manufacturing, the greatest contributions to the growth of Sweden's private sector occurred in trade, transportation and communication, real estate, and business services. Output grew relatively rapidly in education, health and community, and personal services, but from a very modest base. We will return to the performance of market-based services in our analysis of Sweden's institutional setup.

---

1. The average GDP growth rate in Sweden was 4.1 percent in 1966 to 1970, 5.2 percent in 1961 to 1965, and 3.4 percent in 1951 to 1960 (Statistics Sweden).

2. When measuring GDP from the production side, Statistics Sweden calls this "total market producers and producers for own final use." This roughly corresponds to total production, excluding government production. However, it should be noted that incorporated production units wholly owned by the government, such as the postal service, housing owned and run by local governments, and incorporated public hospitals are classified as market producers.

7.1.2   Market Work Activity

Figure 7.1 displays cumulative changes in Sweden's employment and population since 1950. As stressed in our original study, the second half of the twentieth century saw almost no net job growth in Sweden's private sector, even though the working-age population expanded by roughly one million persons. In contrast, government employment grew more than one for one with the working-age population until 1990.

The early 1990s marked a pronounced departure from employment patterns in earlier decades in two respects. First, government and private employment fell sharply relative to the working-age population. The employment-population ratio fell by roughly 10 percentage points within a few years, and the open unemployment rate soared to levels not seen since the Great Depression. Second, the partial employment recovery after 1993 occurred almost exclusively in the private sector. In fact, private-sector employment exceeded its previous peak in Sweden by 2001, while government employment remains well below the levels of the 1980s. Private-sector employment fell again after 2001, however, and aggregate employment in 2005 remained well below its peak in 1990.

Despite the impression given by figure 7.1, the extent to which the Swedish private sector has rediscovered a capacity for job creation is unclear. Some of the measured gains in private-sector employment reflect changes in the legal form of organization rather than new job creation within the private sector. For example, when a regional government incorporates its hospitals, employment at these hospitals is reclassified into the private sector. As a somewhat different example, when a publicly funded private school substitutes for a municipal school, the effect is to boost measured employment in the private sector.

Relative to population, employment was much higher in Sweden than in the United States and the rest of the OECD until the deep contraction of the early 1990s. It then fell below the value in the United States and greatly narrowed the gap relative to the average of other countries in the OECD.

Table 7.1 also presents a breakdown of employment and employment growth in Sweden's nongovernment sector from 1994 to 2005. Nongovernment employment grew by 11.3 percent, and all of the net gains occurred in the service sector. Sizable contributions to nongovernment employment growth occurred in wholesale and retail trade, real estate, renting and business services, and education, health, and social work. Manufacturing employment fell by 3 percent, despite a 95 percent gain in real value added.

Although widely studied, employment and unemployment statistics have serious limitations as measures of overall work activity. Definitions of employment and unemployment are seldom straightforward, and they change over time and differ among countries in ways that defy easy comparisons. These data are especially problematic when used as measures of labor market performance and work activity levels in Sweden.

Table 7.1   Decomposition of Swedish nongovernment GDP and employment growth, 1994 to 2005

	Share of total value added, 1994 (%)	Contribution to real value added growth, 1994-2005	Share of employment, 1994	Contribution to employment growth, 1994-2005
Total market producers and producers for own final use	**100.0**	**49.7**	**100.00**	**11.30**
Producers of goods	40.9	21.9	42.0	-0.8
Producers of services	59.1	23.4	58.0	12.1
Producers of goods	**40.9**	**21.9**	**42.0**	**-0.8**
Agriculture, forestry, fishing	3.5	0.0	5.2	-1.4
Mining and quarrying	0.4	0.1	0.3	0.0
Manufacturing	26.6	20.6	27.2	-0.8
Electricity, gas, and water works	4.3	0.2	1.2	0.2
Construction industry	6.1	0.8	8.0	1.2
Producers of services	**59.1**	**23.4**	**58.0**	**12.1**
Wholesale and retail sale	14.3	6.1	20.1	1.4
Hotels and restaurants	1.8	0.6	4.1	0.7
Transport, storage, and communication	9.5	3.8	10.3	0.1
Financial institutions and insurance companies	7.3	2.0	3.2	0.2
Real estate, renting, and business service companies	22.8	6.7	12.6	6.4
Educational, health, and social work establishments	1.6	1.5	3.3	2.6
Other community and personal service establishments	1.8	1.0	4.4	0.7
Manufacturing	**26.6**	**20.6**	**27.2**	**-0.8**
Food product, beverage, and tobacco industry	2.3	0.3	2.6	-0.4
Textiles, clothing, and leather industry	0.4	0.0	0.6	-0.2
Wood and wood products	1.2	0.8	1.4	0.0
Pulp and papers; publishers and printers	4.3	0.2	4.0	-0.9
Coke and petroleum products	0.2	0.2	0.1	0.0
Chemicals	2.6	2.3	1.3	0.0
Rubber and plastic products	0.7	0.3	0.9	0.0
Other nonmetallic mineral products	0.6	0.1	0.7	-0.1
Basic metals; fabricated metal products	3.5	1.0	3.7	0.5
Machinery and equipment n.e.c.	3.5	1.3	3.6	0.1
Electrical and optical products	3.0	9.7	3.1	-0.3
Transport equipment	3.6	3.0	3.2	0.7
Manufacturing industry n.e.c.	0.6	0.2	2.1	-0.3

Source: Statistics Sweden (SCB) and own calculations.

Note: Growth figures are based on constant prices; reference year 2000. Due to different weights and variations in the value added growth between industries, the subparts will not add up to the total market when accounting for the contribution to total real value added growth. Employment is defined as number of persons; n.e.c. = not elsewhere classified.
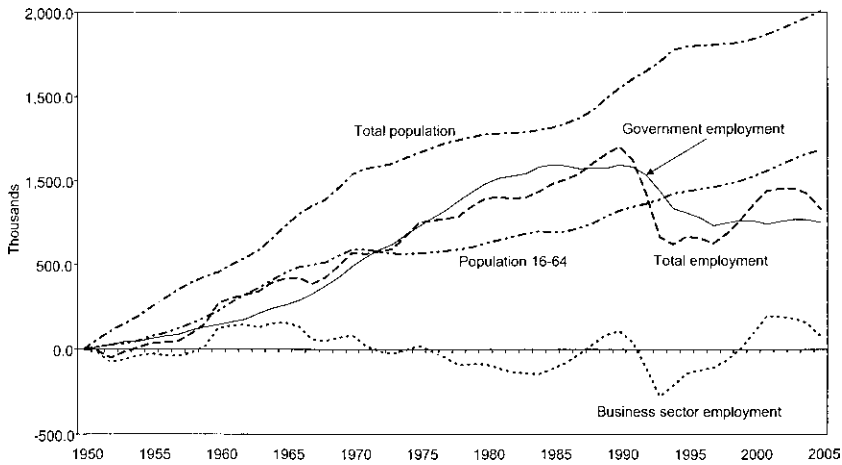
Fig. 7.1   Cumulative employment and population changes in Sweden, 1950 to 2005
Source: Statistics Sweden and own calculations.

Official statistics for Sweden show high rates of employment in the working-age population. For example, Statistics Sweden reports an employment rate of 77 percent in 2004 for persons twenty to sixty-four years of age. This figure reflects many employed persons who are not actually working—including those on sick leave, some students and conscripts, some persons on unpaid leave, people on paid parental leave, and people on temporary leave to care for a sick child. Sickness leave, in particular, is a major source of absenteeism in the Swedish economy. Because official employment statistics make no adjustment for sickness leave and other factors just mentioned, they overstate Sweden's aggregate labor input. The OECD (2005, 82) estimates that the number of persons actually at work in Sweden is 10 percentage points lower than the employment rate for men and 15 percentage points lower for women.

Official unemployment measures in Sweden also paint an overly strong picture of labor market performance. The open unemployment rate in Sweden was 5.5 percent as of 2004, according to Statistics Sweden, but several more comprehensive measures of unemployment have been suggested. They generally include all or part of the following categories: people on sick leave, parental leave, leave to care for family members, and unpaid leave; participants in labor market programs; discouraged workers; people on welfare; and early retirees. It is virtually impossible to agree on an exact number, but expansive concepts of Swedish unemployment yield figures in the range of 18 to 24 percent of the labor force (Edling 2005).

As a broad measure of labor input, hours actually worked per person is a more useful indicator and one that sidesteps some of the conceptual and measurement issues that arise with employment and unemployment

measures. At a minimum, hours-based measures of work activity shed additional light on the behavior of aggregate labor inputs. Hours worked per person aged sixteen to sixty-four years fell by 11 percent from 1990 to 1993 (from 1,325 to 1,178 hours).[3] The recovery from 1993 to 2005 is only a tiny eight hours. Hours worked per person of working age in 2005 are 10.5 percent below the level of 1990.

These data on hours worked derive from self-reported measures in samples of persons. As of 2004, average reported hours of work per employed person is 1,630. This figure may well be an overstatement, given the incidence of part-time work, sick leave absenteeism, parental leave, training, and so forth among those counted as employed in Sweden. Some support for this view comes from a survey of 500 firms collected by the Confederation of Swedish Employers. According to this source, the average number of actual hours worked among *full-time* employees in the private sector was 1,554 hours in 2005.[4] In comparison, the average of self-reported hours worked for *all* employees in 2004 was about 5 percent higher. In this regard, it should be noted that absenteeism of every kind, as well as part-time work, is more prevalent in the public sector. Additional evidence comes from OECD estimates for average hours by full-year equivalent workers in 2002, accounting for various kinds of absences. According to the OECD (2005, table 4.1), the estimate for Sweden is only 1,349 hours, dramatically lower than self-reported hours. (The corresponding European average is 1,567 work hours.) In short, these comparisons suggest that official statistics substantially overstate market work activity in Sweden.

Figure 7.2 shows average hours per person of working age from 1956 to 2003 in Sweden and the United States.[5] Average work time evolves along remarkably different paths in the two countries, with Americans working much less than Swedes in the 1950s and much more by the 1990s. Among Swedes aged fifteen to sixty-four years, work time fell by more than 200 hours per year from 1956 to 1972. Swedish work time then fluctuated in a narrow band for fifteen years, before recovering somewhat in the late 1980s

3. Measures of hours worked are also subject to errors and interpretation difficulties. In this regard, we note that Statistics Sweden revised their estimates of the annual number of hours worked per employed person upward in the early 2000s. For example, the figure for 1997 (as reported in the OECD *Employment Outlook*) was revised upward by seventy-eight hours.

4. See *Svenskt Näringslivs Tidsanvändningsstatistik,* a quarterly publication. The data on work and absenteeism cover 200,000 employees at 500 firms with roughly 2,500 establishments. Reporting firms have chosen to participate, so the response rate is 100 percent.

5. We rely on international data on average hours worked per person of working age supplied by Richard Rogerson (2006), who compiled the data from OECD sources and from data made available by the Groningen Growth and Development Center, available at: http://www.ggdc.net/. The Groningen data on annual hours worked are "intended to include paid overtime and exclude paid hours that are not worked due to sickness, vacation and holidays, etc." Nevertheless, since the Groningen data rely heavily on official national sources, they are subject to the same concerns expressed in the text regarding inaccurate reports of hours actually worked. These concerns apply to the data for all countries, but they may be more serious for Sweden.
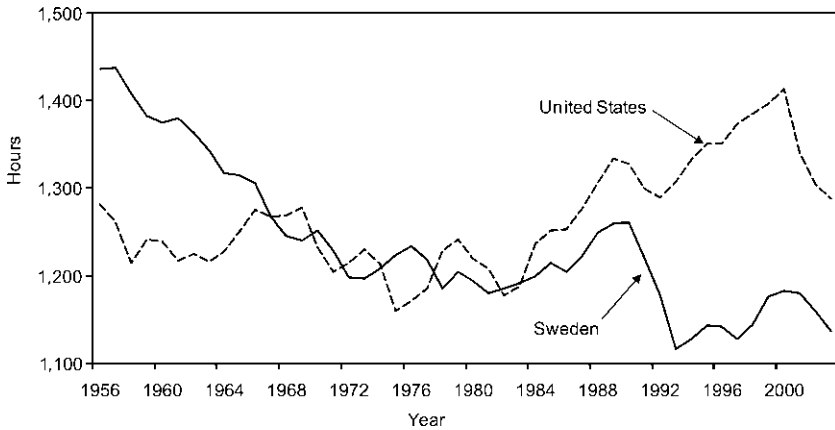
Fig. 7.2   Average hours worked per person aged fifteen to sixty-four, 1956 to 2003, Sweden and the United States

Source: Rogerson (2006), as compiled from OECD sources and the Groningen Growth and Development Center.

and plummeting to new lows in the 1990s. Hours per working-age Swede dropped by 11.5 percent, from 1,261 in 1990 to 1,116 in 1993. In contrast, average hours among working-age Americans rose rapidly, from 1,179 in 1982 to 1,413 in 2000, and then fell sharply after 2000 from a very high base. According to these data, as of 2003, Americans spend 150 hours more per year in market work activity than Swedes.

Large national differences in the level and time path of average hours worked hold more broadly among rich countries, as Rogerson (2006) effectively highlights. Compared to other rich countries, the United States experienced unusually large gains in average hours worked after the early 1980s, but Australia, Canada, and New Zealand had similar experiences. Austria, Denmark, Finland, Portugal, and the United Kingdom, among other countries, experienced large declines in average work time from high levels in the 1950s and 1960s, much like Sweden. Average hours fell even more sharply in Germany, France, and Italy. They fell by smaller amounts from higher starting points in Switzerland and Japan. Greece, Ireland, the Netherlands, and Spain experienced large increases in average work hours after the late 1980s, partly reversing declines in previous decades. The overall picture is one of remarkable heterogeneity among rich countries in the evolution of average work time.

Figure 7.3 displays the joint evolution of average work hours and per capita output in Sweden and the United States. The prevailing longer-term pattern in Sweden is one of output gains accompanied by decreases in average work hours. In sharp contrast, the prevailing pattern in the United States is one of output gains accompanied by increases in average hours. Judging by
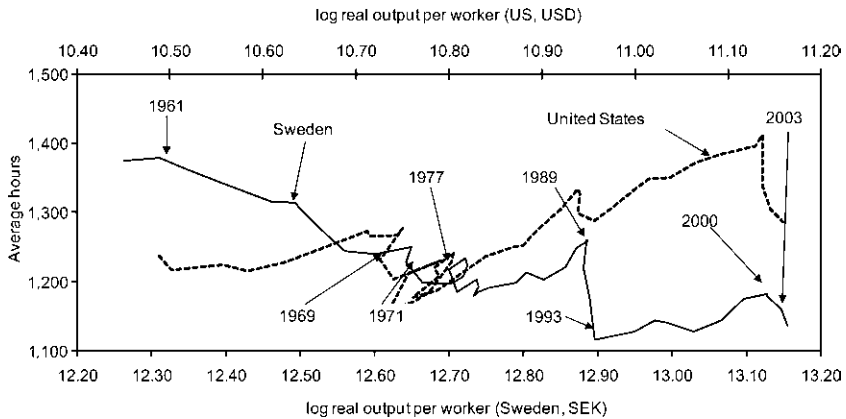
Fig. 7.3   The joint evolution of average work hours and per capita output in Sweden and the United States, 1960 to 2003

Source: Authors' calculations on data from Rogerson (2006) and OECD sources.

Note: Average hours is average annual hours worked among persons fifteen to sixty-four years of age. Real output is measured in 2000 Swedish kronor (SEK) and U.S. dollars (USD), respectively.

the experience of these two countries in recent decades, there is no natural tendency for the amount of time devoted to market work activity to either rise or fall as per capita output rises. Instead, the long-term response of market work activity appears to depend greatly on country-specific features.

7.1.3   Time-Use Surveys

The preceding section draws on standard sources for data on employment and hours worked in the market sector. Time-use surveys allow for a broader view of work activity that includes time devoted to (unpaid) work activity outside the market sector. We draw on evidence from time-use surveys to briefly address three questions. First, how much time do Swedish and American adults devote to work activity outside the market sector? Second, how does the composition of time spent outside paid employment differ between the two countries? And third, how do trends in the amount of time devoted to overall work activity compare to those for market work activity?

Table 7.2 addresses the first two questions, drawing on time-use data for persons between twenty and seventy-four years of age in Sweden (2000 to 2001) and the United States (2004). On average, Americans spend 138 more hours per year in paid employment than Swedes according to the time-use data, an amount very similar to the extra 150 hours per year according to labor force surveys. However, Swedes spend an extra 95 hours per year in domestic household work, excluding child care. In other words, the U.S.-Swedish difference in time spent on overall work activity, inclusive of domestic household work, is less than one-third the difference in time devoted to

Table 7.2   Time-use breakdown, Sweden and the United States compared

	Hours per day		U.S.-Swedish difference	
Men and women, 20–74 years old Time-use category	United States (2004)	Sweden (2000–2001)	Hours per day	Hours per year
1. Study	0.21	0.28	–0.07	
2. Travel (excluding travel during work)	1.30	1.44	–0.15	
2a. Commuting to and from work	0.32	0.33	–0.01	
3. Free time	15.51	15.55	–0.04	–13
3a. Personal care	10.29	10.43	–0.14	
3b. Leisure activities	5.22	5.12	0.10	37
4. Work	6.38	6.26	0.12	43
4a. Paid employment	3.90	3.53	0.38	138
4b. Domestic work (excluding child care)	2.47	2.73	–0.26	–95
Food prep, dishwashing	0.55	0.89	–0.35	–126
Cleaning dwelling	0.36	0.38	–0.02	
Laundry	0.20	0.17	0.03	
Construction and repairs, gardening, pets	0.56	0.59	–0.03	–12
Shopping and services	0.53	0.43	0.10	35
Other	0.28	0.27	0.01	
5. Child care (unpaid)	0.50	0.38	0.13	47
6. Unspecified time use	0.11	0.10	0.00	
Domestic work + child care	2.98	3.11	–0.13	–48
Leisure activities + child care	5.72	5.49	0.23	84

Sources: Sweden: Harmonised European Time-Use Survey (HETUS) Pocketbook, available at: http://circa.europa.eu.int/Public/irc/dsis/tus/library?1=/comparable_statistics/sweden_25_01xls/_EN_1.0_&a=d. United States: authors' calculations on microdata from the American Time-Use Survey, available at: http://www.bls.gov/tus/datafiles_2004.htm.

Note: Personal care includes sleeping, eating, and other personal care activities. Leisure includes unpaid volunteer work outside the household and care of adults who do not reside in the household. Large breaks at work (e.g., time spent on lunch break) are classified as part of paid employment under work-related activities, but short breaks are treated differently for the two countries. They are classified as work time for Sweden and as leisure time for the United States.

paid employment.[6] If unpaid child care is treated as part of domestic work activity, then the extra time devoted by Swedes to nonmarket work activity falls by half.

Remarkably, table 7.2 indicates that Americans enjoy more leisure time than Swedes—an extra 37 hours per year or an extra 84 hours per year if unpaid child care is treated as leisure. Another striking feature of the

6. Olovsson (2009) reaches a similar conclusion from tabulations in Juster and Stafford (1991) of time devoted to nonmarket work activity in Sweden and the United States in the 1980s. Freeman and Schettkat (2005) report similar differences between the United States and Germany.

comparison pertains to time devoted to meals in the domestic household sector. Swedes spend an extra 126 hours per year, roughly 2.4 hours per week, on food preparation and cleanup. These patterns in the data are consistent with a theory of tax effects on task assignment and time allocation, which we describe in section 7.3.2. They are also consistent with evidence described later of how taxes on consumption expenditures and labor income alter the mix of market production activities.

Turning to trends in time use, Aguiar and Hurst (2006) document changes in time devoted to leisure and work activity from 1965 to 2003 by Americans aged twenty-one to sixty-five, excluding students and early retirees. They find very large increases in leisure time of six to nine hours per week for men and four to eight hours per week for women. The precise figure depends on the exact definition of leisure and the variables used to control for shifts in demographic structure. Among men, the rise in leisure mainly reflects a decline in time devoted to paid employment. Among women, it reflects a large decline in time devoted to domestic work that more than offsets rising time in paid employment. Total work time—paid employment plus domestic work—declined by about eight hours per week for both men and women over the period covered by the study. In sum, working-age Americans enjoyed large gains in leisure time after 1965, with no decline in time devoted to paid employment (figure 7.2). Because Americans spend a larger portion of their adult years in retirement now than in decades past, the gains in leisure time among all adults are even larger than suggested by the findings of Aguiar and Hurst. We are unaware of a comparable study for Sweden, but Statistics Norway reports very similar trends in time use from 1971 to 2000.[7]

7.1.4   Expansion in Market Work Activity from 2006 to 2008

There has been a significant increase in Swedish employment and hours worked since 2006, particularly in the private sector. For instance, since the second quarter of 2006, the number of hours worked per person aged sixteen to sixty-four increased by 6.7 percent in the private sector, and employment increased by 6.4 percent. We discuss recent developments in market work activity and the potential role of recent policy reforms in section 7.4.

7.1.5   Summary

We summarize the main points of this section. First, despite Sweden's rapid output growth since 1993, there was little net job creation and almost no gain in market work hours per person through 2005. As of 2005, Swedes aged sixteen to sixty-four spent 10 percent fewer hours in market work activity than in 1990. Second, Sweden has experienced a considerable shift away from public-sector employment since 1990. It is unclear how much of this

7. Available at: http://www.ssb.no/english/subjects/00/02/20/tidsbruk_en/.

shift reflects newly created jobs in the private sector rather than a reclassification of existing employment positions. Third, the time path of market work hours is strikingly different in Sweden and the United States over the past several decades. Fifty years ago, Swedes spent 200 more hours per year than Americans in market work activity; today, they spend 150 fewer hours. Fourth, broader measures of work activity that encompass time spent on unpaid domestic work show a much smaller gap between Swedes and Americans. Based on a comparison of recent time-use surveys, we find that American adults spend an extra 43 hours per year in overall work activity. Swedes spend considerably more time than Americans in unpaid domestic work, especially in food preparation and cleanup, and Americans actually enjoy greater leisure time. Fifth, the Swedish private sector has experienced a significant increase in employment and hours worked from 2006 to 2008.

7.2   Main Thesis and Lessons from Earlier Work

Our earlier work holds that institutional arrangements strongly influence national economic performance. In line with this broad thesis, we developed evidence and analysis that country-specific institutional arrangements have important effects on work activity, industry structure, activity shares of smaller and younger businesses, and the size of the underground economy.

7.2.1   Tax Burdens on Consumption and Labor

Taxes on labor income and consumption expenditures encourage substitution from the legal market sector to home production and the underground economy. To appreciate the power of taxes to depress employment and distort production decisions, consider the choice between market provision and home production in the simple case with no capital inputs. The household opts for the least-cost source of supply. In the absence of taxes, we can express the household's decision rule as

$$(1) \qquad \text{Choose market provision if: } W^B H^B > W^P H^P \Leftrightarrow \frac{W^B H^B}{W^P H^P} > 1,$$

where W^P is the wage rate of the professional supplier in the market, H^P is the production time required by the professional, W^B is the opportunity cost of household time, and H^B is the time input required in household production. According to equation (1), the law of comparative advantage governs the choice of production sector. The household opts for self-supply when it has comparative advantage at the production activity in question and opts for market provision when the professional has comparative advantage. This decision rule is socially efficient in the sense of minimizing the value of scarce time resources used up in production.

Taxes break this link between privately optimal decisions and socially efficient outcomes. To see this point, let t denote the tax rate on the

household's labor income, let s denote the payroll tax rate on the professional's compensation, and let m denote the tax rate on consumption expenditures. The decision rule for the choice of production sector becomes

$$(2) \qquad \text{Choose market provision if: } \frac{W^B}{W^H} \frac{H^B}{H^P} > \frac{(1+s)(1+m)}{1-t}.$$

As seen in equation (2), higher tax rates raise the threshold comparative advantage ratio at which the market solution dominates. The private choice of production sector is now governed by a tax-distorted law of comparative advantage.[8] Too few tasks are carried out in the market sector because of taxes, and too little time is spent working in the market. Conversely, too many tasks are carried out in the household (or underground) sector, and too much time is spent working outside the formal market sector.

As tax rates rise, marginal producers in the market sector are displaced by less-efficient producers in the household sector. This displacement effect lowers average productivity computed over the market and household sectors, but it raises official productivity measures, because they do not encompass the household sector.[9] Hence, the displacement effect also leads official statistics to overstate true productivity in high-tax societies relative to that of low-tax societies. This effect operates even when all workers have the same productivity and earnings ability in market-based activities. Thus, the productivity effect identified here is distinct from the idea that the tax and transfer system has bigger disemployment effects on the least productive workers.

To assess whether tax rates in the relevant range significantly alter the composition of market-based activity, Davis and Henrekson (2005a) consider fourteen rich countries with comparable data on tax rates and on the industry distribution of market activity. They identify tax-sensitive industries on a priori grounds, then investigate whether such industries have lower employment and output shares in high-tax countries. Employment and output shares are markedly lower in a broad group of tax-sensitive industries that includes retail trade, hotels and restaurants, and consumer repair services. An increase in the tax-distorted comparative advantage ratio by 25 basis points lowers the employment share in this industry group by

8. Davis and Henrekson (2005a) derive analogous decision rules when production requires capital and labor.

9. If firms differ in their ability to evade taxes, then taxes need not crowd out the least productive firms. In this case, taxes can lower average productivity and raise average pretax production costs within the formal market sector. See Palda (1998) for an analysis of this issue. Strand (2005) analyzes the efficiency consequences of taxation in a model with three production sectors—the above-ground market economy, the black market economy, and production for own use in the household. He also provides an extensive set of references to other work on the efficiency effects of income and consumption taxes in models with taxed and untaxed production sectors.

2.4 percentage points, or by 12 percent of industry employment evaluated at the mean. Similarly, a 25 basis point rise lowers the value added share by an estimated 1.9 points (13 percent). Davis and Henrekson also find that the share of market activity accounted for by eating, drinking, and lodging establishments is twice as sensitive to taxes as the broader industry group. In contrast, the share of employment in manufacturing shows a positive, statistically insignificant relationship to the tax-distorted comparative advantage ratio. These cross-country patterns support the view that taxes on labor and consumption distort the choice of production sector, and in the process, depress employment in the formal market economy.

These results also help to explain certain aspects of Sweden's industry structure. In particular, compared to countries with lower tax burdens on consumption expenditures and labor income—for example, Canada, Ireland, Switzerland, the United Kingdom, and the United States—Sweden has small employment and output shares in retail trade, consumer repair services, and eating, drinking, and lodging establishments. Production activity is relatively labor intensive in these industries and relatively easy to substitute between the market sector and home production (or the underground sector). Hence, high tax burdens push production activity in these industries out of the (legal) market sector. This interpretation finds additional support in table 7.2, which shows that Swedes devote considerably more time to domestic household work, especially meal preparation and dishwashing, than Americans.

Another type of evidence on tax-induced displacements of employment and production is available from official adjustments to Swedish GDP accounts. Statistics Sweden now makes upward adjustments to official measures of GDP in an effort to capture unrecorded black market activity. These adjustments go back to 1993, and they are largely based on an inquiry carried out in 1997 by the National Audit Office (1997). Table 7.3 reports the official adjustments by industry in 1996. The largest adjustments are for auto repair, restaurants, taxi services, and hairdressing, and the smallest are for industry and consulting. These patterns are consistent with the hypothesis that high tax rates and burdensome regulations shift the mix of (above-ground) market production away from labor-intensive activities (e.g., restaurants and hairdressing) and toward capital-intensive and skill-intensive activities (e.g., industry and consulting). A new comprehensive inquiry conducted in 2005/2006 by the Swedish National Tax Board (2006) found results consistent with the 1997 study. Total black market work is estimated at 4 to 5 percent of GDP.[10] An estimated 13 percent of all persons aged eighteen to seventy-four engaged in black market work within the previous year, an increase of 2 percentage points compared to the 1997

---

10. Indirect methods for estimating the size of the black market economy in Sweden tend to produce much larger numbers. See, for example, table 4.3 in Schneider and Enste (2002).

Table 7.3   **Adjustments to official GDP for black market activity by Statistics Sweden, 1996**

Industry	Black market activity, % of recorded value added
Agriculture	6.4
Forestry	8.5
Industry	0.3
Construction	10.4
Auto repair	26.4
Restaurants	16.2
Taxi services	19.2
Freight hauling	15.8
Consulting	4.0
Cleaning	5.2
Gambling	6.6
Hairdressing	34.8
Other	4.5

Source: SOU 2002:113 (Stockholm: Ministry of Finance).

study. Hours worked in the black market are estimated to have increased in roughly the same proportion.[11]

Our cross-country investigation in Davis and Henrekson (2005a) also finds that higher tax rates on labor income and consumption expenditures lead to less work activity in the formal market sector as a whole and to a larger underground economy.[12] Consider, for example, a 12.8 percentage point difference in the tax rate between two countries, which amounts to a unit standard deviation in the cross section of countries. Using data for the mid-1990s, we estimate that a tax increase of this size leads to 122 fewer hours worked per adult per year in the formal market sector, a drop of 4.9 percentage points in the employment-population ratio, and a rise in the underground economy equal to 3.8 percent of GDP. Evaluating at means in the cross-country sample, the implied elasticity of aggregate hours worked with respect to the combined tax rate on labor and consumption is –0.55. As we explain in our earlier work, our estimates reflect the direct effect of taxes

11. More specifically, a special inquiry into the underreporting of revenue in restaurants indicates an increase in black market activity in recent years: "The Swedish National Tax Board estimates, based on an extensive audit of the restaurant industry in the county of Dalecarlia, that the unreported revenue in the restaurant industry in 1995 nationwide amounted to 37 percent of total revenues of 20 billion kronor, or approximately 7 billion kronor. The degree of tax evasion has subsequently accelerated. More recent estimates suggest that unreported revenues amount to roughly double in 2002, i.e. 15 billion kronor" (Skatteverket, *Skattestatistisk Årsbok 2004,* 238; authors' translation). Fifteen billion kronor amounts to 102 percent of total value added in restaurants in 2002, according to the National Accounts.

12. Many other studies investigate the role of tax rates in cross-country differences in work activity and the size of the underground economy. Several recent studies in this area are motivated by the provocative work of Prescott (2004). See Alesina, Glaeser, and Sacerdote (2005), Davis and Henrekson (2005a), and Rogerson (2006) for references to this literature.

on labor supply and labor demand plus the effects of tax-funded welfare and social insurance programs on labor supply incentives.

Taxes on labor income and consumption expenditures also alter relative labor demands among workers in a potentially important manner. Tax-sensitive industries include eating and drinking establishments, laundry and cleaning services, child care, consumer repair services, domestic household help, and most personal services. As suggested by this list, tax-sensitive sectors tend to rely heavily on less-skilled workers with lower schooling and wages. Hence, uniform tax rates on labor income and consumption expenditures have disproportionately large negative effects on the demand for less-skilled workers, depressing their relative wages and employment opportunities.

The interaction of wage-setting institutions and high tax rates is also important in the Swedish case. Institutions that compress pretax wages reinforce tax-induced distortions in the choice between market provision and home production. To see this point, consider first the impact of institutional forces that raise wages for less-skilled, lower-wage workers. Because activities with easy substitution between home and market production rely heavily on less-skilled workers, wage floors for less-skilled workers raise the cost of production by a larger percentage in these activities. In this respect, wage floors for less-skilled workers reinforce the departures from comparative advantage induced by taxes on labor and consumption. Second, institutional forces that reduce wages for skilled workers affect their choice between home production and market provision in the same way as higher labor income taxes. Again, the effect is reinforced by tax-induced departures from the law of comparative advantage in the choice of production sector.

7.2.2 Business Tax Policy

The preceding discussion indicates that Sweden's compressed wage structure and high tax burdens on labor and consumption depress employment and output in industries that compete closely with the black market or unpaid household production. Some important aspects of Swedish business tax policy have reinforced these effects and have repressed further labor demand, as we now discuss.

Beginning in the early 1960s and continuing for three decades, effective tax rates on business income in Sweden differed tremendously by source of finance and ownership category. Debt was the most tax-favored form of financing, and new equity issues were the most penalized. Business ownership positions held directly by individuals and families were taxed much more heavily than other ownership categories. To illustrate the magnitude of these differences, table 7.4 presents effective marginal tax rates for different combinations of owners and sources of finance. Three categories of owners and three sources of finance are identified. The effective marginal tax rates

Table 7.4   **Effective marginal tax rates on business income in Sweden by ownership category and source of financing, 1960, 1970, 1980, 1985, 1991, 1994, and 2005**

	Debt	New share issues	Retained earnings
1960			
Households	27.2	92.7	48.2
Tax-exempt institutions	–32.2	31.4	31.2
Insurance companies	–21.7	41.6	34.0
1970			
Households	51.3	122.1	57.1
Tax-exempt institutions	–64.8	15.9	32.7
Insurance companies	–45.1	42.4	41.2
1980			
Households	58.2	136.6	51.9
Tax-exempt institutions	–83.4	–11.6	11.2
Insurance companies	–54.9	38.4	28.7
1985			
Households	46.6	112.1	64.0
Tax-exempt institutions	–46.8	6.8	28.7
Insurance companies	–26.5	32.2	36.3
1991			
Households	31.7	61.8	54.2
Tax-exempt institutions	–9.4	4.0	18.7
Insurance companies	14.4	33.3	31.6
1994			
Households	32.0/27.0[a]	28.3/18.3[a]	36.5/26.5[a]
Tax-exempt institutions	–14.9	21.8	21.8
Insurance companies	0.7	32.3	33.8
2005			
Households	27.9/22.9[a]	58.1/48.1[a]	42.7/32.7[a]
Tax-exempt institutions	–1.2	23.2	23.1
Insurance companies	18.2	44.6	42.6

Source: Calculations provided by Jan Södersten; see also Södersten (1984, 1993).

Note: The calculations assume a real pretax return of 10 percent, an asset holding period of 10 years, an asset composition identical to the actual composition in the manufacturing sector, and the following inflation rates: 3 percent in 1960, 7 percent in 1970, 9.4 percent in 1980, 5 percent in 1985 and 1991, and 2 percent in 1994 and 2005. The calculations conform to the general framework developed by King and Fullerton (1984).

[a]Excluding wealth tax; the wealth tax on unlisted shares was abolished in 1992. Hence, the higher figure applies only to the securities of listed companies.

are calculated assuming a 10 percent pretax real rate of return, an asset holding period of ten years, and an asset composition that matches the actual composition in manufacturing. A negative entry in table 7.4 means that the real rate of return is greater after tax than before tax.

Differences in effective tax rates on Swedish business income were especially large around 1980. For example, a debt-financed business investment in 1980 offering a pretax real return of 10 percent yielded an after-tax return

of 18.3 percent for a tax-exempt institution such as a pension fund. The same business investment financed by a new equity issue purchased directly by households yielded an after-tax real return of –3.7 percent. More generally, debt financing was highly favored by the tax system throughout the period covered by table 7.4, and direct household ownership positions were heavily disfavored. King and Fullerton (1984) and Fukao and Hanazaki (1987) find that Swedish tax policy was extreme in these respects compared to other countries.

These differences in effective tax rates have potentially powerful effects on the organization of business activity and the industry mix of productive activity. A few examples serve to make this point. First, to the extent that debt financing is less costly and more readily available for larger and more firmly established firms, high statutory tax rates coupled with tax-deductible interest payments work to the disadvantage of smaller firms and potential entrants. Second, debt financing is more easily available to firms with ready forms of collateral. Hence, firms and sectors that intensively utilize physical capital reap greater benefits from tax code provisions that favor debt financing. This aspect of the tax system favors capital-intensive industries and modes of production relative to labor-intensive ones. Third, high tax rates on business income accruing directly to households represses many of the same activities as high tax rates on labor and consumption. Many economic activities that are highly substitutable between market provision and home production (e.g., cooking, cleaning, laundering, landscaping, home repairs) offer greater-than-average scope for self-employment, employment in small firms, start-ups, and family-owned businesses.

7.2.3   Summary

Key features of the Swedish institutional setup have depressed market work activity. Heavy tax burdens on labor and consumption repress the market provision of services with close substitutes in the black market and home production. Wage-setting institutions that compress pretax wage differentials reinforce this tax effect. International comparisons indicate that market work activity is particularly sensitive to tax rates and wage compression in labor-intensive, service-oriented activities. Many activities that fit this description also offer greater-than-average scope for self-employment, small businesses, start-ups, and family-owned businesses. In addition, Sweden's business tax policies have worked to the disadvantage of labor-intensive industries and modes of production.

7.3   Institutional Developments in the 1990 to 2005 Period

We now turn to Swedish institutional developments since the early 1990s. We consider these developments in the light of both our earlier analyses and Swedish economic performance since the deep crisis of the early 1990s.

7.3.1   Wage-Setting Arrangements

An important new wage-bargaining agreement was introduced in Sweden in 1997—namely, the Agreement on Industrial Development and Wage Formation (*Industriavtalet,* IA).[13] The IA is a further step toward more decentralized and individualized wage setting, a process that is often said to have started in 1983, when the metal workers' union defected from the centralized regime (Hibbs and Locking 2000). Under the IA, many agreements are reached that make no reference to centrally negotiated pay structures—everything is decided at the local level. Most agreements, however, still incorporate guarantees regarding minimum pay levels.

An important question is whether this new wage-setting regime also affected bargaining outcomes. After the demise of centralized bargaining in the mid-1980s, wage dispersion began to increase among blue- and white-collar workers (Edin and Topel 1997; Hibbs and Locking 2000; and Davis and Henrekson 2005b). As Lundborg (2005) documents, wage dispersion among blue-collar workers leveled off in the mid-1990s but began to rise even more sharply among white-collar workers in the private sector. Moreover, average real wages began to increase much faster among white-collar workers. From 1995 to 2005, average real wages rose by 43 percent for white-collar workers, as compared to 22 percent for blue-collar workers (based on a comprehensive wage measure that includes bonuses, paid overtime, and fringe benefits).[14] In short, the period from 1995 to 2005 saw a considerable widening of the wage gap between white-collar and blue-collar workers and a sharp increase in wage dispersion among white-collar workers (see also Fredriksson and Topel, chapter 3 in this volume).

7.3.2   Taxes on Labor and Consumption

The simple theory of task allocation sketched in section 7.2.1 identifies the tax-distorted comparative advantage ratio as a key determinant of market work activity and its composition. Motivated by this analysis, figure 7.4 plots the evolution of the tax-distorted comparative advantage ratio, or tax factor, for three types of Swedish workers. The values in figure 7.4 capture mandatory Social Security contributions, consumption taxes, and marginal tax rates on labor income.

Swedish workers faced modest tax factors in the early 1950s of around two for executives and lower for others. The tax factors rose steadily after 1952. By the late 1970s, they reached levels near four for industrial workers, above five for white-collar workers, and above eight for executives. The tax factors declined somewhat in the 1980s, dropped sharply with the tax

13. See Elvander (2002), Djerf et al. (2003), and Fredriksson and Topel (chapter 3 in this volume) for a more thorough description of the IA and its functioning.
14. Statistics Sweden and the Confederation of Swedish Enterprise (2006).
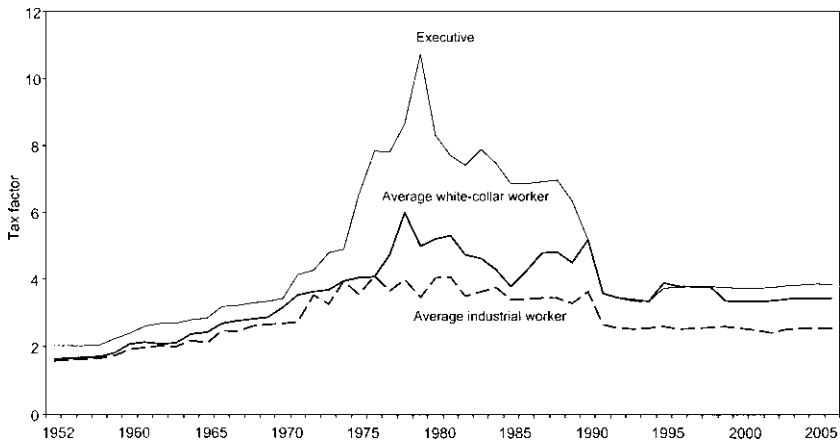
Fig. 7.4   Tax-Distorted comparative advantage ratios for three types of workers in Sweden, 1952 to 2006

Source: Du Rietz (1994) and new calculations supplied by Du Rietz.

Note: The tax factor for each category is evaluated at mean earnings each year. An executive is defined as an individual in the management group (below the CEO) in a private firm. The tax factor includes mandatory Social Security contributions paid by the employer or the employee, the marginal income tax, and the indirect taxes on private consumption. (All income is assumed to be spent for private consumption purposes.) Property taxes are excluded. The tax wedges for executives and average white-collar workers coincide between 1991 and 1998.

reform of 1990 and 1991, and crept upward in recent years as the result of higher tax rates at the local government level. As of 2006, Swedish tax factors stand at 2.54 for industrial workers, 3.44 for white-collar workers, and 3.85 for executives. The corresponding tax factors for the United States are in the interval of 1.4 to 2. While current Swedish tax factors are well below levels of the 1970s and 1980s, tax factors in the range of 2.5 to 3.9 still provide powerful incentives to shift production and employment out of the formal market sector. As a result, large parts of the service sector face harsh competition with unpaid work and the black market. These tax effects are amplified by institutions that compress the pretax wage distribution, as we explained in section 7.2.1.

Figure 7.4 does not account for some important tax-avoidance strategies. In particular, the income tax code in Sweden and many other countries provides significant opportunities for households to reduce effective tax burdens by shifting income to tax-favored sources, incurring tax-deductible expenses, and engaging in certain portfolio transactions. Before Sweden's tax reform in 1990/1991, high-income earners "could exploit a number of asset transactions to escape taxation" (Agell, Persson, and Sacklén 2004, 964). These transactions included "complex schemes of transforming corporate income into low-taxed capital gains" (964–5), an unlimited ability to subtract net negative asset income from labor income when calculating

taxable income, tax-deductible interest payments, the purchase of tax-preferred assets with borrowed funds, and intrafamily debt transactions. Households also, within limits, could invest in untaxed pension funds and tax-favored savings accounts. Agell and Persson (2000) and Agell, Persson, and Sacklén (2004) present several pieces of evidence that high-income Swedish households used these tax-avoidance strategies to a significant extent.

For our purposes, the theoretical and empirical literature on these asset-based tax-avoidance strategies yields some cautionary lessons. First, effective tax factors are undoubtedly smaller than reported in figure 7.4. Second, the 1990/1991 Swedish tax reform engineered a smaller reduction in effective tax factors than suggested by figure 7.4 or by any other examination of statutory tax rates. In line with this conclusion, Malmer and Persson (1994) find that the discrepancy between taxable income and labor income declined substantially in the wake of the 1990/1991 tax reform. Similarly, Agell, Englund, and Södersten (1998) report that Swedish households initiated a rapid pay down of their debts in the early 1990s. Third, because the tax reform imposed new restrictions on asset-based tax-avoidance strategies, it is possible that the reform actually raised effective tax rates for many high-income earners. Hence, it is unclear whether and how much the tax reforms in 1990/1991 stimulated employment or how much they softened the incentives to shift certain production activities to the underground economy and unpaid household work.

7.3.3 Taxation of Business Income

The substantial tax preference for debt financing described in section 7.2.2 presupposed a policy of strictly regulated capital markets. However, the deregulation of domestic capital markets in the latter half of the 1980s greatly expanded credit availability, even as the tax system remained virtually unchanged and foreign exchange controls continued to limit investment abroad by Swedish households (Jonung 1994; Norrman and McLure 1997). Later, in 1991, the corporate tax rate was cut in half to its current value of 28 percent.[15] The conversion to a dual income tax system with a 30 percent flat tax rate on capital income in 1991 and the abolition of wealth taxation on unlisted stock in 1992 favored individual equity investments relative to the earlier situation.

The tax burden on Swedish individual ownership remained heavier than the tax burden on institutional ownership and individual ownership in most other countries (Henrekson and Jakobsson 2005). Globalization has also made it easier for large Swedish incumbents to shift their ownership stakes to foreign tax jurisdictions in order to reduce corporate tax burdens and to escape personal taxation on ownership (Henrekson and Jakobsson 2005).

15. At first, it was reduced to 30 percent. See Agell, Englund, and Södersten (1998) for a detailed examination of the tax reforms in the early 1990s.

Tax loopholes continue to channel individual wealth into institutional equity funds rather than owner-operated businesses. For closely held companies, there are restrictions on the payment of dividends—the so-called 3:12 rules. These rules were introduced in 1991 to prevent owners of profitable small businesses from saving on taxes by paying themselves dividends taxed at 30 percent rather than wages taxed at the marginal tax rate for labor income. The scope for dividend payments thereby was restricted to a relatively small percentage of the equity capital paid in by owners. To the extent that labor-intensive service-sector production tends to be more amenable to owner-operated businesses and operations by nonlisted firms, this is a mechanism by which market work activity is discouraged.

7.3.4   Government Production of Income-Elastic Services

On the surface, there appears to be substantial scope for private entrepreneurs in Sweden to compete with government production through public procurement programs and voucher systems in schooling, child care, and so forth. In practice, however, public providers are often insulated from competition with private business (Fölster and Peltzman, chapter 8 in this volume).

Due to the de facto public-sector monopolization of production in many income-elastic services, vast areas of the economy remain unexploited as sources of commercial growth. In particular, in the health sector, it is easy to imagine how a different organizational mode could provide a basis for the emergence of new high-growth firms. Instead, large-scale production in the manufacturing sector has been seen as a model for central parts of the production of highly income-elastic services such as health care, child care, elderly care, and education. This has had a profound effect on private-sector growth—from 1960 until the late 1990s, all net employment growth in Sweden took place in the local government sector (Rosen 1997).

These publicly produced services in many cases are highly suitable for production in private and often also small firms. The political decision to produce these services primarily through a public-sector monopoly has largely barred this area from both startup activity and the emergence of high-growth firms. To provide some evidence on this point, table 7.5 summarizes the share of private production for the major services that are fully or primarily tax financed. The private production share is very low in activities such as child care, care of the elderly, and after-school care, despite the fact that these activities are highly amenable to private, small-firm production.

7.4   Recent Policy Developments and Changes in Market Work Activity

The center-right government that took office after the September 2006 elections implemented several policy reforms aimed at increasing market work activity. In this connection, we briefly discuss the introduction of an

Table 7.5   **Sweden's private-sector production share for major services that are primarily publicly funded, 1996, 2000, and 2005 (%)**

Service	1996	2000	2005
Institutional child care (preschool)	12.5	11.8	16.7
Child care in the home (of the professional)	2.2	8.6	12.0
After-school care	4.5	—	9.2
Compulsory schooling	2.4	3.9	7.4
High school	1.9	4.4	13.4
Care of the elderly at nursing homes	8.3	10.0⎫	13.2
Care of the elderly in special apartments	5.1	11.0⎭	
Care of the elderly in their own home	2.6	7	9.7
Hospital care	4.3	—	7.3[a]
Medical consultations	28	—	28.7
Share of doctors privately employed	10	7.3	7.0[a]
Psychiatric wards	24	—	5.9
Children's dental care	5	—	9.8

Source: Werenfels Röttorp (1998) for 1996; Jordahl (2002) for 2000; Socialstyrelsen (2006) for care of the elderly in 2005; The Swedish National Agency for Education (www.skolverket.se/) for all schooling measures in 2005; and Jordahl (2006) for health and dental care in 2005.

Note: For 2005, the categories "care of the elderly at nursing homes" and "care of the elderly in special apartments" cannot be distinguished, so they comprise one category.

[a]2004. Dashed cells = data not available for that year and service.

earned income tax credit (EITC), cuts in Social Security tax rates, tax breaks for household services, and changes in job security mandates and unemployment insurance.

Sweden introduced an EITC in 2007 and modified the program in two later steps. Here, we consider the rules in effect from January 2009. The average and marginal tax rate is zero up to an annual labor income of 38,500 Swedish kronor (SEK).[16] From annual income of 38,500 SEK to 300,000 SEK, the marginal tax rate is lowered by roughly 5 percentage points (from roughly 31 percent to 26 percent). For labor income exceeding 364,000 SEK, there is no effect on the marginal tax rate, and the maximum rate is unchanged at roughly 56 percent. For older people, the taxation of labor income has been lowered even more by strengthening the effect of the EITC system for this group. The marginal tax rate is now 11.5 percent for annual labor income between 38,500 SEK and 100,000 SEK in this group.

Economic theory implies that the EITC lowers workers' gross wage demands, because they care about after-tax wages. The result is likely to be greater work activity by the affected groups. However, unions are pressing hard to undo this effect by pushing for increased minimum wages in the relevant industries. To the extent that they succeed in these efforts,

16. Using a purchasing power parity adjusted exchange rate of 9.2 SEK per U.S. dollar in 2008 (from the OECD), 38,500 SEK corresponds to about 4,200 dollars.

they will undo the positive effects of the EITC program on market work activity.

Social Security (SS) rates have been reduced for several demographic groups.[17] There was an across-the-board reduction of 1 percentage point (down to 31.4 percent), plus a further reduction of 2 percentage points for self-employed persons who opt for a thirty-day waiting period in the sickness insurance system. Prior to 2007, the SS rate for pensioners was 24 percent, but it has now been reduced to 0 percent for people above age seventy and to 10.2 percent for those aged sixty-five to sixty-nine and for those aged sixty-one to sixty-four who withdraw their public pension (allowed from age sixty-one). In addition, the SS rate has been cut to 15.5 percent (half of the regular rate) for employees aged sixteen to twenty-five, to 0 percent for people coming off disability pensions or a paid sick leave of more than one year's duration,[18] and to 0 percent for refugees who get a job while they study Swedish.

In 2007, the government also introduced a large tax break on household-related services. The maximum tax reduction is 50,000 SEK per person, amounting to 50 percent of the labor cost, including value added tax. The tasks must be performed at or in the immediate vicinity of the buyer's own home. Eligible tasks include cleaning, washing, cooking, child care, and gardening. For a household of two adults, services eligible for a subsidy of up to 200,000 SEK per year can be purchased. This is a huge reduction in the effective tax rate on many market-mediated substitutes for own-household production. Given prevailing market wages for this type of work, the tax break can be applied to roughly 800 to 1,000 hours per year of purchased services.

As an example, suppose the buyer faces the highest marginal tax rate of 56.5 percent, and the seller of household services is an older person who faces a Social Security tax rate of 10.2 percent under the new regime. In this example, the tax factor falls from 3.9 under the 2005 tax code to $(1 + 0.102)(1 + 0.25)/(1 - 0.565) \times 1/2 = 1.58$ under the 2007 regime. For persons who qualify for the zero percent tax rate under the new regime, the effective tax factor falls to 1.44. Based on the analysis and evidence previously reviewed in section 7.2.1, we anticipate that this change in the tax law will eventually stimulate a large increase in the market provision of household services. At this writing, however, there is little evidence of such an increase. Based on the experience of Finland, it takes some time for a system like this to gain momentum.[19] Moreover, families who employ help in the black market may

17. These reductions in SS tax rates described in this paragraph are partly offset by the fact that an earlier reduction of up to 5 percentage points on wages up to 740,000 SEK per year was rescinded in 2007 (which had been in effect since the late 1990s).

18. The 0 percent SS rate applies for a period of time that matches the duration of the previous spell of disability or paid sick leave.

19. See Niilola and Valtakari (2006).

continue to do so. In some cases, families may be unwilling to fire helpers who lack a valid work permit. In other cases, they may make payments off the books to persons who receive social welfare benefits and who, if the income were declared, would face an effective tax rate of 100 percent.

From July 1, 2007, Swedish job security mandates were relaxed, in that firms are now allowed to employ anyone for up to twenty-four months without granting tenure rights, as long as the term of employment is prefixed. A host of measures have also made it more difficult to be eligible for unemployment benefits. Examples include a requirement to accept jobs outside one's immediate expertise and an obligation to relocate for a new job if there are suitable openings. The retention rate in the unemployment insurance has been reduced from 80 percent to 70 percent of the former wage (up to a cap). Finally, the maximum number of days that one can receive unemployment benefits has been lowered. Altogether, these measures are likely to increase search intensity among jobless persons.

It is premature to quantify the impact of recent tax and labor market reforms on Swedish work activity. However, our analysis suggests that the reforms described here will stimulate market work activity, perhaps by a significant amount. Recent changes in employment and market work hours are consistent with this prediction. Figure 7.5 shows a continuing increase in employment and hours worked per person aged sixteen to sixty-four through the second quarter of 2008 (the latest available data). Since the second quarter of 2006, the number of hours worked per person aged sixteen to sixty-four rose 6.7 percent in the private sector, and employment rose 6.4 percent. These are sizeable increases, consistent with what we would expect from the recent policy reforms. However, to what extent these employment effects can be attributed to the reforms and to what extent they are due to business cycle effects is too early to tell.

7.5   Concluding Remarks

After the deep economic contraction in the early 1990s, Sweden enjoyed strong output growth relative to the 1970s and 1980s and relative to contemporaneous experience in much of the OECD and EU. However, relatively rapid output growth failed to produce much recovery in employment or market work hours. Thirteen years after the trough in 1993, hours worked per person of working age remained roughly 10 percent below their peak in 1990. International comparisons indicate that Swedes spend considerably less time in market work activity than Americans and the average for European countries.

One possible reaction to these outcomes is a shrug of complacency. If Swedes choose to enjoy the fruits of economic progress in the form of more leisurely lifestyles and a more robust social safety net, that is a perfectly reasonable, even sensible, path to follow. We think this view is too sanguine on
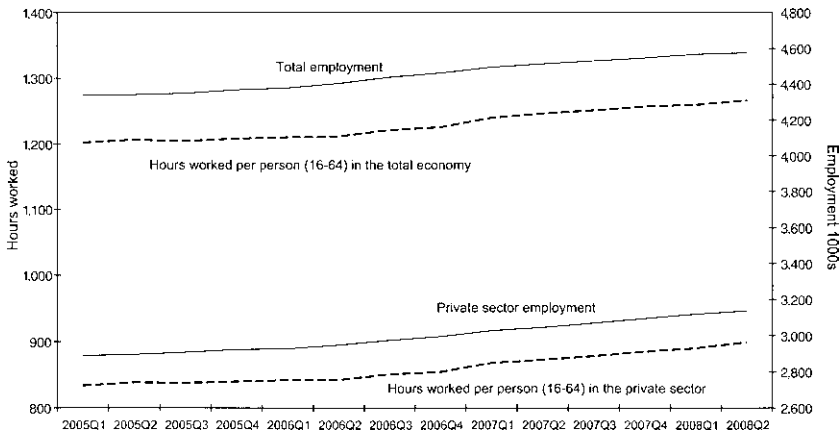
Fig. 7.5   Hours worked per person aged sixteen to sixty-four and employment in the total economy and in the private sector, Sweden 2005:I–2008:II.

Source: Statistics Sweden.

Note: All data are seasonally adjusted, and hours worked are annualized.

several counts. First, the dramatic drop in Swedish work activity in the early 1990s coincided with a sharp contraction in output and real incomes. Moreover, low work time is not taken by individuals with high income; rather, it mainly reflects persons of relatively modest means who work little or not at all (Björklund and Freeman, chapter 1 in this volume). These time-series and cross-sectional patterns do not fit a story of rising real incomes used to purchase additional leisure.

Second, the inference that low market work hours means plentiful leisure is unwarranted. Data from time-use surveys indicate that working-age Swedes devote nearly as much time to work as Americans, once domestic household work is factored into the comparison. Working-age Swedes actually enjoy less leisure than their American counterparts, according to our comparison of recent time-use surveys. The time-use evidence squares neatly with evidence that Sweden and other high-tax countries have comparatively small output and employment shares in sectors that produce time-saving goods and services.

Third, recent international studies find evidence of a sizable elasticity of aggregate work hours with respect to the combined tax rate on labor income and consumption expenditures.[20] Our own work based on cross-country variation in a sample of rich countries in 1995 yields an estimated hours elasticity of –0.55. Dew-Becker and Gordon (2006) estimate an elasticity of –0.4 based on within-country time-series variation from 1960 to 2004. We

20. See Davis and Henrekson (2005a), Dew-Becker and Gordon (2006), and Rogerson (2006).

interpret these estimated elasticity values as reflecting the combined effects of high tax rates on labor supply and demand, plus the effects of tax-funded welfare and social insurance programs on labor supply incentives. Tax and spending effects of this magnitude are likely to generate sizable welfare losses in a country with a public sector as large as Sweden's (Aronsson and Walker, chapter 4 in this volume).

Several recent policy changes have created a favorable environment for the expansion of market work activity in Sweden. The introduction of an earned income tax credit, sharp reductions in Social Security tax rates for certain demographic groups, big drops in effective tax burdens on the market provision of household services such as cooking and cleaning, the relaxation of job security mandates, and the tightening of eligibility requirements for unemployment benefits are noteworthy developments in this regard. While it is too early to confidently assess the impact of these reforms, our analysis and evidence suggest that they will raise market work activity over time, perhaps substantially. Increases in private-sector employment and work hours from 2006 to 2008 are consistent with this view.

References

Agell, J., P. Englund, and J. Södersten. 1998. *Incentives and redistribution in the welfare state: The Swedish tax reform.* London: Macmillan.
Agell, J., and M. Persson. 2000. Tax arbitrage and labor supply. *Journal of Public Economics* 78 (1): 3–24.
Agell, J., M. Persson, and H. Sacklén. 2004. The effects of tax reform on labor supply, tax revenue and welfare when tax avoidance matters. *European Journal of Political Economy* 20 (4): 963–82.
Aguiar, M., and E. Hurst. 2006. Measuring trends in leisure: The allocation of time over five decades. NBER Working Paper no. 12082. Cambridge, MA: National Bureau of Economic Research, March.
Alesina, A., E. L. Glaeser, and B. Sacerdote. 2005. Work and leisure in the United States and Europe: Why so different? In *NBER macroeconomics annual 2005,* ed. M. Gertler and K. Rogoff, 1–64. Cambridge, MA: MIT Press.
Confederation of Swedish Enterprise. 2006. *Fakta om löner och arbetstider 2006.* Stockholm: Svenskt Näringsliv.
Davis, S. J., and M. Henrekson. 2005a. Tax effects on work activity, industry mix and shadow economy size: Evidence from rich-country comparisons. In *Labour supply and the incentives to work in Europe,* ed. R. Gómez-Salvador, A. Lamo, B. Petrongolo, M. Ward, and E. Wasmer, 44–104. Cheltenham, U.K.: Edward Elgar.
———. 2005b. Wage-setting institutions as industrial policy. *Labour Economics* 12 (3): 345–77.
Dew-Becker, I., and R. J. Gordon. 2006. The slowdown in European productivity growth: A tale of tigers, tortoises and textbook labor economics. Paper presented at the National Bureau of Economic Research (NBER) Macroeconomics and Productivity Workshop. 20 July 2006, Cambridge, MA.

Djerf, O., H. Frisén, L. Hagman, and H. Ohlsson. 2003. Köpkraft och konkurrenskraft: tredje avtalsrörelsen med Industriavtalet. *Ekonomisk Debatt* 31 (8): 16–26.

Du Rietz, G. 1994. *Välfärdsstatens finansiering.* Stockholm: City University Press.

Edin, P.-A., and R. Topel. 1997. Wage policy and restructuring: The Swedish labor market since 1960. In *The welfare state in transition: Reforming the Swedish model,* ed. R. B. Freeman, R. Topel, and B. Swedenborg, 155–203. Chicago: University of Chicago Press.

Edling, J. 2005. *Alla behövs: Blott arbetsmarknadspolitik skapar inga nya jobb.* Stockholm: Timbro. Available at: http://www.timbro.se/pdf/Alla_behovs_2.pdf.

Elvander, N. 2002. The new Swedish regime for collective bargaining and conflict resolution: A comparative perspective. *European Journal of Industrial Relations* 8 (2): 197–216.

Freeman, R. B., and R. Schettkat. 2005. Marketization of household production and the EU-US gap in work. *Economic Policy* 20 (41): 5–39.

Fukao, M., and M. Hanazaki. 1987. Internationalization of financial markets and the allocation of capital. *OECD Economic Studies* 8 (Spring): 35–92.

Håkansson, C., and A. Lindbeck. 2005. Korpi vilseleder igen: Replik. *Ekonomisk Debatt* 33 (1): 58–65.

Henrekson, M. 2001. Swedish economic growth: A favorable view of reform. *Challenge* 44 (4): 38–58.

Henrekson, M., and U. Jakobsson. 2005. The Swedish model of corporate ownership and control in transition. In *Who will own Europe? The internationalisation of asset ownership in Europe,* ed. H. Huizinga and L. Jonung, 207–47. Cambridge: Cambridge University Press.

Hibbs, D. A., and H. Locking. 2000. Wage dispersion and productive efficiency: Evidence for Sweden. *Journal of Labor Economics* 18 (4): 755–82.

Jonung, L. 1994. The rise and fall of credit controls: The case of Sweden, 1939–89. In *Monetary regimes in transition,* ed. M. D. Bordo and F. Capie, 346–73. Cambridge: Cambridge University Press.

Jordahl, H. 2002. *Vad har hänt med de enskilda alternativen?* Stockholm: Reforminstitutet.

———. 2006. Konkurrensutsättning av offentlig verksamhet: Hur stor är effektiviseringspotentialen? IFN Policy Paper no. 8. Stockholm: Research Institute of Industrial Economics.

Juster, T., and F. P. Stafford. 1991. The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature* 29 (2): 471–522.

King, M. A., and D. Fullerton. 1984. *The taxation of income from capital: A comparative study of the United States, the United Kingdom, Sweden, and West Germany.* Chicago: University of Chicago Press.

Lindbeck, A. 1997. The Swedish experiment. *Journal of Economic Literature* 35 (3): 1273–319.

Lundborg, P. 2005. Individual wage setting, efficiency wages and productivity in Sweden. FIEF Working Paper no. 205. Stockholm: Trade Union Institute for Economic Research.

Malmer, H., and A. Persson. 1994. Skattereformens effekter på skattesystemets driftskostnader, skatteplanering och skattefusk [The effects of the tax reform on compliance costs, tax planning, and tax fraud]. In *Århundradets skattereform,* ed. H. Malmer, A. Persson, and Å. Tengblad, 5–364. Stockholm: Fritzes.

Niilola, K., and M. Valtakari. 2006. The effect of the tax deduction scheme for household services on the market for household services and new employment. Publication no. 310. Helsinki, Finland: Finnish Employment Office.

Norrman, E., and C. E. McLure. 1997. Tax policy in Sweden. In *The welfare state in transition: Reforming the Swedish model,* ed. R. B. Freeman, R. Topel, and B. Swedenborg, 109–55. Chicago: University of Chicago Press.

Olovsson, C. 2004. Why do Europeans work so little? Seminar Paper no. 727. Stockholm University, Institute of International Economic Studies.

Organization for Economic Cooperation and Development (OECD). 2005. *OECD Economic Surveys: Sweden.* Paris: OECD.

Palda, F. 1998. Evasive ability and the efficiency cost of the underground economy. *Canadian Journal of Economics* 31 (5): 1118–38.

Prescott, E. 2004. Why do Americans work so much more than Europeans? *Quarterly Review of the Federal Reserve Bank of Minneapolis* 28 (1): 2–13.

Rogerson, R. 2006. Understanding differences in hours worked. *Review of Economic Dynamics* 9 (3): 365–409.

Rosen, S. 1997. Public employment, taxes, and the welfare state in Sweden. In *The welfare state in transition: Reforming the Swedish model,* ed. R. B. Freeman, R. Topel, and B. Swedenborg, 79–109. Chicago: University of Chicago Press.

Schneider, F., and D. H. Enste. 2002. *The shadow economy: An international survey.* Cambridge: Cambridge University Press.

Socialstyrelsen. 2006. Äldre: vård och omsorg år 2005. Statistik Socialtjänst no. 2006:3. Stockholm: Socialstyrelsen.

Södersten, J. 1984. Sweden. In *The taxation of income from capital: A comparative study of the United States, the United Kingdom, Sweden, and West Germany,* ed. M. A. King and D. Fullerton, 87–149. Chicago: University of Chicago Press.

———. 1993. Sweden. In *Tax reform and the cost of capital: An international comparison,* ed. D. W. Jorgenson and R. Landau, 270–300. Washington DC: Brookings Institution.

Strand, J. 2005. Tax distortions, household production, and black-market work. *European Journal of Political Economy* 21 (4): 851–71.

Swedish National Audit Office. 1997. Svart arbete. RRV 1997:59. Stockholm: Riksrevisionsverket.

Swedish National Tax Board. 2006. *Svartjobb och svartköp i Sverige.* Rapport no. 2006:4. Stockholm: Skatteverket.

Werenfels Röttorp, M. 1998. Den offentliga sektorns förnyelse: vad har hänt under de senaste 15 åren? In *På svag is,* ed. H. Lundgren, B. Falk, E. Jannerfeldt, T. Svensson, and M. Werenfels. Stockholm: Timbro.